1955
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doc. 464

UNITED STATES
DEPARTMENT OF THE INTERIOR

D1-6

APPROVED DECEMBER 1941

KM. Waage Contents doc. 464

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(beginning - continued in Ntbk 1935-2)

11.1
3.9

Colorado Springs Sec. 55-1 - Colo Spgs sheet locality ①

Location W½ NE¼ Sec 10, T14S, R67W, in tributary gulley to Fountain Creek which exits N across old road at about top of Gorgonous.

Thickness —

Benton shale - about 40 ft exposed, black fissile with bentonite beds. Basal .8 silty sh. with irreg interbeds siltstn - yellow n

16) 7.6 Sandstone, fine grained, tabular, laminated and cross laminated, weathers with mottled black stain. [Upper 2' relatively thin bedded with partings black fissile shale. Becomes irregularly bedded + silty upward with orange to yellow brown stain.

7) 2.2 Siltstone, laminated, progressively more shaley downward, laminae argill. silt to clay shale. All very fissil to thin bedded. Weathers gray with some OE stain locally. Clay sh. is black - as below

8) 4.4 Shale, black, clay, very fissile at top becoming somewhat silty - near base at base

7) 6.7 Sandstone, fine - med. gr., friable, porous argillaceous, with beds of black sandy clay shale - in lower 2'. Underlies slope

6) 15.0 Sandstone, fine-grained, friable, massive

1.

laminated to X-lam.

. to irregularly tabular, weathers grey to lite grey with rusty stain. Lower half commonly forms blocky (or terrace) ledge.

. Basal 4 to 6" contains distinctive clay pellets +, locally some chert gtzt, conglomerate of brn weathy clay + silty cly in grey (lite) ss matrix. Contains linguloid brachs, fecal, fish vertebrae, bone frags, nodules. Linguloids and scattered small clay pellets common throughout lower 3 feet. (Sample Colo Spgs 55-1A) A-818

. The lower 1' of this unit is laminated, has some blackish partings characteristically shot through with sand filled worm borings. The basal cgl is a local feature only. (Sample Colo Spgs 55-1B A-818

5) 1.2 . Shale, blackish, fissile, sandy, with lenses of fine gr. white ss, siltstone, and locally a basal ~~ss~~ cgl. ss as much as 0.5' thick.

Shale is worm-worked, double vertical tubes + curved burrows // bedding.

Sample Colo Spgs 55-1C - the next

" " " " " -1D - the coal

4) 1.9 Sandstone, fine-grained, thin bedded, lam. to x-lam, with interbeds of black sudy shale. Shale was mainly worked breaks up the set of sandstone into several beds. Sandstone beds cave some. Lam. unit not resistant but sticks out here in slide area. Weath lite gray brown st.

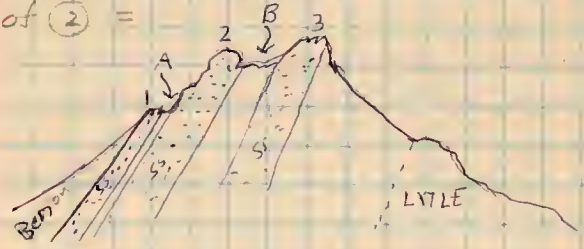
3) 5.5 Sandstone, clayey irreg laminae, grading downward to black clay shale with irreg. laminae & blebs silt & sand. Basal 1.5 is silty to sudy shale.

2) 2.4 Siltstone and fine-grained sandstone laminated. few scattered layers clay silt. Weath lite grey, mottled orange stain

1) 0.6-? Shale, clay, gray silty, obscured by gravel wash.

Colo Spgs sheet locality (2)

In this area the Dakota hogback appears to be uninterrupted by faulting, but only the ss ledges stick out. Profile in vicinity of (2) =



shaly bed at B is thick locally, elsewhere thin. bench at A fairly persistent.

Northward from 2 it looks as though ss 2 becomes thinner, shaly, and lies in back slope whereas 3 remains massive & forms crest.

Beer Creek roadcut - locality 3

Black shale of Graneros has bentonite (with gyp) 1.3 above contact with white Lytle. Lytle at contact is conglomeratic siltstone or ss. Pebbles up to 1½" diameter.

Colo. Spgs locality 1,
Section continued downward (street) in pieces
Sec. 55-2 - from base unit 2 of Sec. 55-1 downward.

8)	2.3	Shale, lignitic, silty, tough, weathers brownish gray to gray in lower part
7)	0.2	Bentonite
6)	1.2	Shale, as above bentonite, lignitic
5)	1.8	Shale, gray, grading downward to black, silty, lower 0.6 is black carbonaceous
4)	1.5	Siltstone, weathers lite gray Sonic yellow-brown stain. Massive, contains plant fragments. Appears to be irreg. lenticular.
3)	6.5	Shale, partly ~~obscured~~ upper in upper half. Grades downward from silty gray shale to dark gray shale into tough lignitic, silty shale in basal 1.5.
2)	4.3	Shale, light gray waxy grading downward into black tough shale from 0.8 to

about 2.0 above base. Basal 0.8 is increasingly silty, lighter gray

1) 3.6 Siltstone grading to fine sandstone, upper part argillaceous, carbonaceous shaly silt lenses & thin coals. Some xlam throughout. Lower part - weathers lite gray to gray white, irregular, broken.

* To south on ridge upper 1.5 of silty unit grades to variegated claystone - pink & gray with to

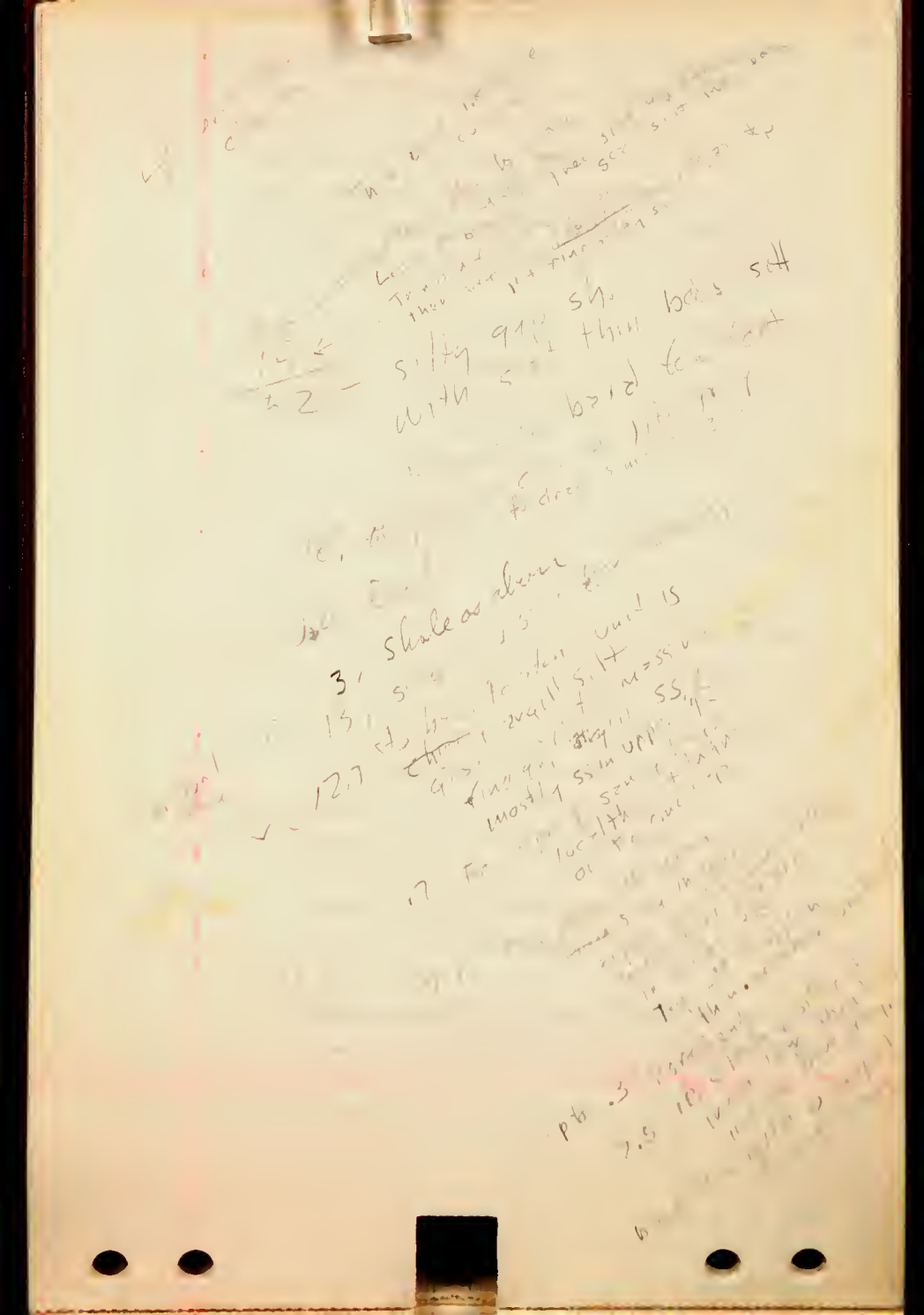
Note. The sandy beds in this section are blocky, not fissile. Not obviously jointed.

* Interval has cyclic repetition of lighter shi grading upward to lite gray waxy shi.

Sec 55-3 - Same locality, up slope across from Sec 55-1
From base of unit 1 above dune sand

12.0+ Sandstone, fine grained, massive, bedded, cross-laminated, weathers to blocky cliff, ridge. Base obscured by slope wash

Sec 55-4 - Across swale from bed (2) above. The lower 32 feet or so



consists of massive to tabular beds x-lam sandstone. At base this bed has the odd U-shaped worm casts that Kesslers has—see sample

Sec. 55-4 – Across valley to N of loc. 1 partial exposure of shaly beds between base of Sec. 4 Delta and one above.

Top of basal Dem. is – at valley up.

6) 1.4. – Chiefly shale, lite grey, silty at base to lig. brownish black above. Clay-like obscured, no detail, covered slope.

5) 10. – Interbedded siltstone, silty-lig sh and thin platy ss. Lowest foot is brown sandy fissile ss equiv, shaly in lig clay of interval below. Above this irreg interbedded ss & sh mass of ss, v. soft, & siltst, both interlam with carb shaly layers. Some platy lig. sh at top.

4) 3.4 – Sandstone, fine gr, locally silty, in irreg. x bed lenses, soft, contorted with unit below. Weathers grey white & tan in 3 ft top.

3.) 13.7 Sandstone, fine-med, massive x-lam

weathers buff with some black stain on bedding. Some clay grains in it too.

2) 7.0 ± (probmax). Sh... with interb... clay fissile shale and grey silty shale and siltst...

1) 6.8 . Similar as in S. above, some silt zone.

Slope wash - pine on slope needs.

Road along E. bank Cr. S. of railroad grade. Between here and locality 1 fruit thin S Lytle sequence has Dakota. Lytle, massive tan sandstone fairly thick mud, very clayey interbedded with fuzzy olive-gray beds as we have characterized them below 4" ... but it is green at upper few ... chocolate to purple. Zone 2 to 3'

Sec. 55-5. This is in gulley at loc. #1. ~~It may be Finlay's type Glencairn.~~ Along the old railroad over hill to north it is completely cut out and Lytle is faulted against Dakota. Here, however, there is a complete section up from Lytle

Starting base of "Dakota" (= Kassler, and has some peculiar markings at base as does type Kassler.)

Base ss
unconformity.

14) 2.5 Interbedded siltstone and silty shale, irregularly laminated and thin bedded, weathers blue-grey

13) 0.3± Porcellanite

12) → 14.7 Shale, dark-grey clay, silty at top and base. Upper 0.4 is siltstone with thin porcellanite under it. Scattered thin beds of fine-gr. sandstone and siltstone in lower 3.5.

11) .7 Sandstone, silty, fine-grained, Fe impregnated cap on underlying unit — stands out as purplish conc. layer.

10) 12.7 Siltstone and fine-gr. sandstone. An

		argillaceous, sandy siltstone grading upward to friable, silty sandstone, upper 6.0 chiefly sandstone. This unit grades downward into following
9.)	13.0	Siltstone, argillaceous, hard blocky, grading downward into silty shale.
8.)	3.0	Shale, clay, plastic, - light gray to drab few silty zones
7)	0.4	Bentonite
6)	18.0	Shale as in 8) above
5)	1.0	Sandstone, fine grained, silty, laminated, grades into unit 4 below
4)	13.0	Sandstone, argillaceous, very sandy to silty shale. Thin bed of fine gr. silty sandstone at base
3)	33.0	Shale, silty to sandy, gypsiferous,
2)	5.0	Shale, black, fissile, with 0.1 bentonite 1.8 above base
		disconformity
1)	—	Claystone, green and gray-green (very fine sand less than 0.1 locally at contact)

Colo. Spgs. - Bear Creek Rd. Locl 4 3

Fault block or large slump of top Dakota - overturned along road just E. hogback at Pike Trail marker.

Section measured from top, stratig. down.

Slope wash - probably on Lewis.

5.9. Sandstone, fine gr. loess vc. x-bdd., calc. cmtd. buff, some dark stains.

2.3 Siltstone, thinly bedded & laminated some sandy interbeds, buff to yellow brn.

2.7 Shale, dk gr-brn to gr-gy, very fissile silty at top, grades down to dk, loc. liquitic, blocky siltsn.

2.4 Interbedded ~~fine~~ sand & sandy shale, zones liquitic & and about .0.8 irreg. bedded hard siltstone at top

3.6 Sandstone, med-fine, buff, x-bdd in irregular beds.

11.

4,2 Silty, loc clayey, fine gr ss, with parting lig. sh in lower part. Soft with dark streaks + laminae throughout.

11,8 Sandstone, fine-med gr, massive x-bedded

9,5 Silty sandstone with carb laminae + partings and some ~~fissile~~ sandy carb. shale, lower 4' is shaly + lam. bedded siltstone, upper 5½' is dense, silty, weathers grey-white some beds creamy stain — whole unit soft.

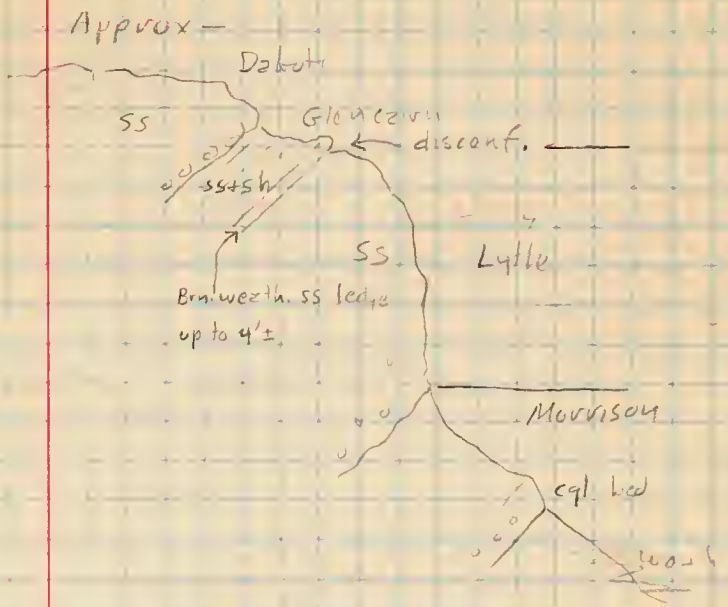
5,5 Sandstone - fine-gr to med gr, calcareous, xbdm., clay pellets scattered throughout.

5,3 Shale dark grey to black, finely silty, grades into dk grey overlying siltstone about 2' above base locally basal foot ± is highly silty laminated zone - chalky grey-white + pyr.

Massive brn weath SS - upper of 2 in Bear Cr section

Hoorfra County, Wet Mt. reconnaissance

Locality 1. - Could measure section here.



Cznon City area...

Section 55-1 – Hogback along cutoff from US50 to Shaws Park.
Location – Just NE bend in road where Lytle & upper Morrison Cgls prominent. Sec. SCS sheet 267.
NE cor SE¼ sec. 6, T16S, R.70W.

Starts at sandstone ledge on Glencairn.

17) 6.4+ Sandstone, fine-grained, tabular bedded, beds .5'-1.5', Weathers rounded, iron stained. This is bottom of cuesta ledge.

16) .9 Sandy, soft, shaly

15) .1 Porcellanite.

14) 4.2± Shaly siltstone in upper 0.8± grading to dk gray shale.

13) 0.2 Porcellanite

12) .9 Siltstone, locally sandy, shaly

11) 5.0± Shale, silty, some interbedded silt; concretions abundant.

10) 7.7 Sandstone, fine-grained, tabular, locally silty upper 1.2 to 2 feet is ferruginous

grades downward into sandy siltst.

9) 3.5 Shale, silty, dk gray, and siltstone

8) .5+ Conglomeritic. Cht & qtzite pebbles

7) 2.5 Sandstone, fine-grained, and siltstone, friable to shale with some med. grained lenses. Some silicified wavy beds locally

6) 4.5 Sandstone, fine to coarse, friable to X bedded, med gray w/ rus FeO stn. with shale contact and white kaolin below it. Basal .5 to 2.0 is conglomeritic to a good cgl.

5) 27.0 Sandstone, med to coarse, cgl. stringers throughout, massive westins. gray-white sand pink stain.

4) 18+ Shale, lower 1/3 silty, upper 1/3 red sandy clay, lower 1/3 fine grained friable ss, mottled with red shale at base, but mostly pink-grey. Hazelton.

3) 18± Sandstone, sand. siltstone, red + gr ngh friable, massive to irreg. bedded minor silty clasts laterally,

2) 12.6 Sandstone, massive v lgn, fine to coltc, Cgl stringers throughout, chert qtzite pebbles, weathers brown, knobs qtzite on weathersurface.

1) 42± Sandstone continuation of above but more friable, semi-cgl lense in upper 12' lower 30 more cgl/c except clay pellet. Base of bed is obscured by slopewash

Units 1 & 2 combined are a thick lgn lense of intersecting channels.

The 'mines' north along the crest appear to have been in the Morrison cgl. not working now.

Canon City area (cont)

Parkdale section #1 - About center S½ S½ sec. 7 T. 18 S, R. 71 W. - pieced from exposures around small Dakota-capped butte just N of where U.S. 50 crosses Arkansas River.

Gravel cap on soil base with some brown-weath fine ss slabs.

6) 29.0± Sandstone, massive, cross laminated, fine to medium-grained. Local breaks at shaly ss & silty lenses. One of these about 1.5 below top. Weathers light brown, base some dark Fe. brn surfaces.

5) 54.1.0± Sandstone, similar to above but cross-bedding somewhat more irregular weathers yellowish-gray, basal 25 has coarse to cglte lenses.

4) 9.5± Shale zone obscured by wash. Float of thin-bedded platy siltstone some silty shale no clastics

3) 26.0 Sandstone fine to coarse + cglt; basal 6 to 7' is massive x-lam and fine-grained. Above this pebble local uncons with chert + qtzite pebble cgl up to 1.5, upper part tabular. Ledd, brn weath.

2)	3.6	Shale, chocolate coloured, flaky black, fissile.
1)	8.0	Siltstone, tabular to irreg bedded locally clayey, hard, weathers blue-grey. some layers: brown weathr. ss., and some shaly partings. Sandstone

Parkdale section # 2

North skeena river road from Parkdale # 1 SW facing scarp of hogback. at pequatite plant.
Unit # 3 of Parkdale # 1 forms ledge here.
base 4.6 is massive, fine grained. Under surface of overlying ss. has Inoceramus
Base of the 4.6 or down —

11.6±

3.4. - Shale, dk gray to black fissile with thin interbeds of layers to shaly siltstone, Sh+

0.7. - Siltstone, laminated, hard, weaths. blue gray.

1.2 - Shale, black, fissile, some silt layers.

2.6 - Sandstone, fine-med, gr, hard tabular, local shly ss bed in middle.

3.0 - Shale, partially obscured, dk gray to black some silt layers & laminae

15.0 - Sandstone, massive, fine gr to silt, irreg x bdg, friable weaths, yellow brn soft crumbly. Lower 4 to 5 ft some conc. Fe brown ledges

2.2. Siltstone, shaly, interbedded with lam. ss and silty to sandy gray sh. Silt weathers light gray.

2.6. Siltstone, dk gray, sandy, grades to fossil. bk sandy. in lower 1.0

0.3 Poor collection

7.6 Siltstone, shaly, dk gray. weathers gray-white, sand interbeds dk silty sh. and scattered thin Fe brn weath ss layers.

6.4 Sandstone, v fg, laminated to qz shaly interbeds. mucn locally, base hzs 0.6 to 3.0 ft dk gray to black silty to sandy shale. Basal 1 ft ss conglomeratic. locally an 0.2 bed sandy calc shale at base. This weak ss unit shot with gypsum layers.

Disconformity

0.6 Argill ss, yellowish white,

4.5	Claystone, sandy, grey white grades to unit below. Local concretions in upper 1'
18.0	Sandstone, fine to coarse, sparingly calcic. Friable weathers white with local yellow stain
2.5	Claystone, light grey, sandy.
5.0	Sandstone, argillaceous, soft laminated grade local to sandy claystone. Red in upper 2½ grey or [illegible] below, top 1' ± local weathered yellow ledge
2.5	Sandstone, fine, massive calcareous grey white, yellow stain
7.0	Claystone, red, very sandy
30 ±	Sandstone, fine grained calcareous grey white sandstone ± local lenses in the sandy red clay - as much as 5' thick
2.3	Claystone, red, very sandy.

13.0 Sandstone, med vf, grey white with pink and yellow stain fine to med gr, minor coarse some clay pellets.

Locally this unit gets much thicker, loses channels

9.4 Interbedded fine grained platy sandstone, red stained to yellow weathering and red sandy claystone SS is electing in upper 4', has worm mks is lenticular

9.2 Claystone, silty to sandy, variegated mottled lite green-grey to red upper 1.5 to 2. sandy locally on argill ss. weathers yellow, pink stained

Thin argill ss bed: 1'. Local 3' locally thicker to yellow ss lenses up to 2'

3.5 Sandstone, fine to coarse & calcite (cont. & grains) weathering yellow to tan.

This bed forms cut banks.

0.8	Clay stone bright green laminated
9.5	Clay stone, red, some streaks clay stone
2.6	Sandstone lens, fine gr. micaceous weathers buff to tan slope
3.7	Clay stone, red with 1ft zone green 0.6 from top, silty
1.2	Sand lens, clayey fine, red, some yellow mottling
1.3	Clay stone red, sandy
1.6	Sandstone, fine gr., weathers brown micaceous
1.7	Clay stone, red with 0.6 bright green at top
2.10	Sandstone, fine gr, as above, weathers red brown, micaceous
26.0	Clay stone, chunky green, 6' band red in middle (slope changes as it begins) lower 2 red. Scattered thin sandy beds.

7,4, Sandy clay shale & sandstone
upper 4' chiefly crumbly sandy
red clay, green streaks,
lower chiefly red stained
medium sandstone.

9,2 Clay stone reddish green
local sandy zones

1,0+ Sandstone, yellowish with
local layers up to 5' [illegible]

12+ Clay stone, green with
zones red

Slope wash.

Canon City area

Addition to old Stratton Section (Ntbk 3, p 24.) From top of the 517' fine to coarse ss, bottom p. 23 of N0563 Ntbk 3.

4.2	Claystone, greenish, grading downward to sandy pinkish purple clayst. in lower 1.4
1.0	Sandstone, calcareous reddish brown loc. argillaceous
2.7	Sandy green to purple clayst. grading down to ss in basal 2'. Fine gr loc. argill.
	Laterally this ss loses + cross cuts underlying beds + forms part of Morrison upper cgl. (in part where?)
4.7	Clayst. + sandy clayst. variegated reddish purple + bright green locally cut out by channel of overlying ss.
6.8	Chiefly clayst., variegated, banded, sandy, with interbeds clay sandst. Chiefly bands like old

purplish red with some green in lower 1 ft.

3.0 Sandstone, fine gr, with some pyrite veg. cleavage

3.7 Claystone, sandy with fine bed. plety siderite in upper & lower 1' clasts is red & green.

4.2 Claystone, sandy, upper 2' green, then crumbly clayey ss, chiefly red 1.5 lower .5± green sandy clsts

2.3 Sandstone, fine gr., locally, claystone, pyrite

3.0 Claystone, red and green

4.0 Sandstone, fine gr, massive calcareous, hard.

3.0 Claystone, sandy, var. red - green

3.6 Chiefly, sandstone with some clay pellets, and

with beds of var. claystone +
- sandy claystone

3.8 Varicol. (laterally) from var.
sandy claystone with thin
lenticular base to fine gr.
massive ss that forms top of
above.

16.0 Claystone red & to sandy
claystone green with some
red zones in lower 5'

7.4 Sandstone, fine gr, irreg-bedded
with lenses interbeds sandy green
claystone, minor red, yellowish brown

1.1 Claystone, sandy, variegated red

1.0 Sandstone, ~~variegated~~ red to brown with
local green

3.7 Claystone, silty, green upper
half, red lower

1.8 Sandstone with interbeds
claystone - lenses cut
laterally into sandy var.
claystone

4,2 Sandy .vcv. clsty sand
zvglull SS at top

1,2 SS, rdsh gr lensc

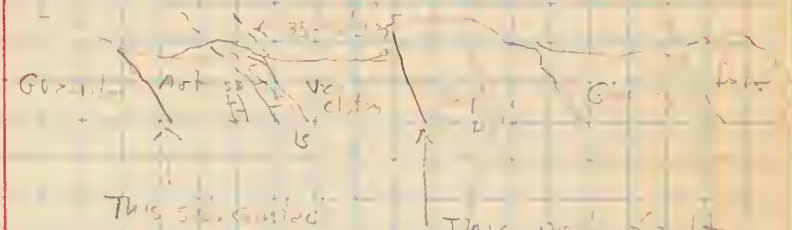
26'± Clayst. – red – to
wash 2' culvert = 15'±
Slope wash – Measurement approx,
pcccd of by Joe*

[*Joe Gregory]

Twelvemile Park — Cover Mt Quad

Locality 1 — Along Colorado (9)

Here Morrison rests on granite with 6' ± arkosic clstn., ss, & lmstone



This ss. contact sec. arkosic + ls spec.

This possible fault, shown contact, could be channel, in which case Lytle is overlapping M.

This sequence varies to north and here Lytle cuts out against basal glomerate. Again this could either be fault or unconf.

Locality 2 Ray Grem Ranch — low ridge just N house.

Here thin silver each Morrison, Lytle, Dakota(?) could be faulting, slicked surfaces on the top (Dakota) sandstone. All Lytle & Dakota gone about at the house.

Twelvemile park, (Cont.)

Locality 3 – hogbacks behind Lowey ranch on hill south of Current Creek. Here Dakota chiefly ss but locally shows the clay break of O.C.C. member. Lower Dak ss thick, calc in lower part.

has fairly persistent thick cgl in upper part. locally forms subsidiary ridge.

No complete section available here – in canyon at X and nearby entire Dakota + most of Glencairn can be had

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Twelvemile Park (Cont.)

Section down from top. Detail start with at mouth small canyon in hogback just south of Cowen Ranch. Locality 2X.

Weak with thin bluish to Fe bar zone siltstone about 2.0 above unit below.

1.5 Sandstone, fine-gr., silty, with interbedded shaly suit + shale, weathers light gray, some Fe brown stain.

3.0 Shale, dk to dk gy-gray, weathers light gray in upper half, yellowish in lower.

1.7 Sandstone, fine-gr. massive, hard weathers light gray with Fe bar splotchy stain.

A
0.2± Ferruginous shale

3.8 Sandstone, fine grained, ple with interbed shale, silts. + ss+

Three units comprising A are in less resistant unit below - See above

41.8 Sandstone, fine-gr, tan + brn. parts. massive x-lam, mica laminated to shaly. Commonly silty, weathers OBr.

12.6 Interbedded fine-gr platy ss and shale, silty ss, weathers light gray platy outcrop. Some OB stain on joints + bedding surfaces

41.8 Siltstone and sandstone, very shaly, thin platy. minor argill shaly siltstone. Lite. above but more shaly weathers gray to lite gray. Few ss beds as much as 0.5

34.0 Sandstone, fine-gr to med, massive + tabular, x-lam. Basal 1.8 med to coarse-gr. clay pellet cgl. (= Horizon Draw Creek Canyon memb.) some shaly beds in lower this horizon

36.0 Sandstone, chiefly med-gr massive x-lam to x bedded lower 2 to 4 feet coarse with

clay pellet cgl and scattered chert pebbles in basal 1.0 ±.

7.0 Sandstone as above but with coarse zones and basal clay + chert pebble cgl

11.5 Shaly, silty, hard, and argillaceous siltstone, shaly. Dk gray to black on fresh, weathers light blue gray shaly to platy. Some thin sandy beds with asphalt.

13.0 Sandstone, tabular, med to coarse grained with partings of finely silty ss and shale. Some 3-5 cm pebble cgl

3.1 Sandstone as above, but coarse. Xlam less. tabular more massive.

3.7 Interbedded fine-med grained ss 1-5 cm beds, aver. 0.2, and silty to sandy dk gray shale & siltstone (transition beds between units above & below).

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3.6 Shale, silty to clay, dk gray, with thin interlaminated equilaceous siltstone and thin ferruginized zones, ss layers.

5.0 Chiefly sand, fe bn purple fine gr ss with shale interbeds, as encountered above. 0.8 from top is local parallel unit. Shale bands is most from 1 to 3' below top rest ss.

1.5 Shale, dk gray fissile, few ferruginized silt layers and common silt lams

15.5
+8.5
24.0

Sandstone, varicolored, fine to med. weathers lite gray, some equilateral streaks and bits to 10 above base, 2 shale partings. Locally soft & silty. Fe 7.5 to 8.5 above base is Fe leached zone med gr ss that overlays ss Fe in prod layer. Because this clay pellets [illegible] for ss

Note above plot

Note thickness of this ledge tabulated above is the same

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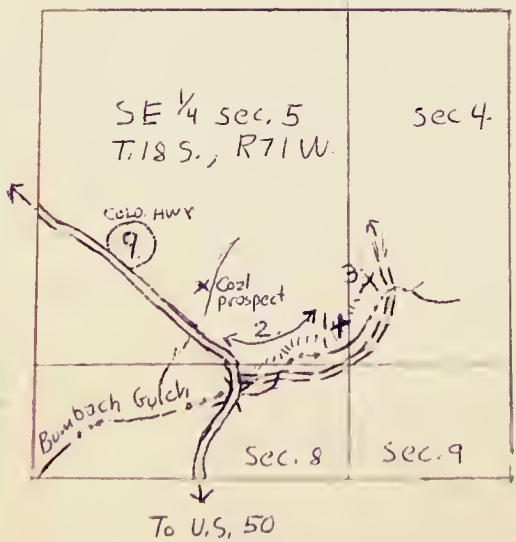
13.7 — Late Ludlow Silty Shale & siltstone. — partially well covered & obscured - appears massive. Includes 2 to 3 ft but best seen 1.5 ft above gray, yellow-weathering shale (zone) that sits on thin gray calcareous ss with clay pellets.

Note - lower third or last 4-5' of this is tabular yellow weathering ss with local cyl 2 ft. Base on white ss is discont with Lytle.

Sandy [illegible] locally weathers yellowish on slope, is prone to more obscured but slopes as observed rest of section.

No cyl on top Lytle here but thin one comes in along strike to south. (See section at Twelvemile Locality 4)

Bumbach Gulch locality (Twelvemile #4)



Cover Mt 15' quad.

Locality 4. Chiefly SE cor sec. 5, S W cor sec 4, T 8 S, R. 71 W. Several localities along Bumbach gulch

Section (1) Section from (see above) climb northeastward down ridge between SW sec 4 W side creek bed on bluffs, about ¼ mile up dirt rd. from Colo rt (9)

0.4 ± Sandstone, conglomeratic, and conglomerate, coarse. Weathers OB

Disconformity

20.5 ± Sandstone, massive, quartz white sand, pebbles, stained, fine to coarse grained. Weathered chert & quartzite pebbles throughout.

4.4 Claystone silty to sandy vertical, green above to red below.

0.4 to 1.0 ± Fine or coarse locally conglom. weathers to pink and forms lenses cut out.

4.0 Claystone, grey, greenish at top silty to shaly, tough.

2.4 Sandstone, silty to clayey fine-grained. Weathers pink & light purple

0.7. Claystone, v. colcy. red grey & purple.

3.0 Sandstone, fine-gr, weaths pinkish brown, in 2 beds with 1.3 claystone ptng in middle. upper layer more prominent, leady

3.3 Claystone, silty & sandy, grey above, lower 1.0 red with green stuff at base.

1.3 Sandstone, fine gr, weaths pink and OB, weak leady.

1.9 Claystone, var, grey green & red

1.3 Sandstone, fine gr, clayey, weaths pink to sl. brn, crumbly leady

3.8 Claystone, silty to sandy loc, lenses argillite at top. locally it is all brick red but lgt top grey & red. Grades to brick red siltstone at base.

3.0. Sandstone, fine gr. weaths. red and white - channel dep. which locally cuts into underlying bed.

0.2 to 0.8 Claystone, sandy, red & white, locally cut out.

1) 9.5 Sandstone, massive, fine gr, X bdg, weathers yellowish light gray, fresh red, pinches, continues under creek bed

Wash in creek bed

Locality 4, section (2). Upper part of Dakota on road (Colo. 9) N. end of bridge, and on ground into gap on dirt road. SE cor Sec 5 and SW cor Sec. 4, T18S, R.71W, (This is actually in Eightmile Park according to map. Benton Shale - weathered crumbly yellowish slope

1.0 ± Sandstone, fine gr, red, dirty with platy particles, non-calcareous, may have Fe cem ± locally. Upper part weathers yellow brn soft, low ledges

2.7 Shale dk gy to dark gray, silty, some thin siltstn beds. Locally at top is thin porcellanite

1.4 Sandstone, fine gr, silty with interbeds dk gy sandy siltst. at top in platy dk gray siltst. in basal 0.6

0.3-0.4 Porcellanite

3.0 Sandstone, fine, gr, and siltstone gray to purple gray, in hard beds up to 1.6 with lenses and protrusions dk gray locally liquitic sandy shale. chiefly upper 1 - 1.5 ft in upper half.

1.3 Sandstone fine, tuffaceous in irregular pebble partings & blebs, sutures is local lens within units above & below.

7 ft. thus goes to coaly sh.

2.5 Sandstone, fine gr, in massive hard beds. 1 to 2 m thick.

2.6 Shale, black, silty, hard, with some siltstone (shaly) in upper part. Weathers bluish gray.

16.3 Sandstone tabular to massive x-lam, fine-grained to med, some shaly partings & beds. Some silty zones, weathers ledgy, buff with gray silt zones. Top bed Fe-stained.

12.9 Sandstone, fine-med, massive x-lam, buff to brown. Cuddle bedded, thin-layer at base

7.5 Sandstone, as above in beds 0.4 to 2.0.

2.6 Sandstone, platy fine, gr. with silty zones & partings grey silts.

13.0 Sandstone as in 7 above some silty zones. Oc flaser bedd. Dk grey silty sh. ptng 4.6 from base

7.6 Sandstone, as above, more silty grey zones

5.0 Sandstone as in 7 silty as above

2.8 Sandstone hard, as in 7 med. gr. buff.

3.2 Sandstone, silty, soft, forms recessions in ledges above & below.

6.0 Sandstone, med to coarse and conglomeratic in base ft, cht & qtzite.

4.2 Shale, dk gray, hard, fissile. Porcellanite 0.1 thick starts 1.5 from top. Below this, some hard interbeds silty shale + silty clst.

1.9 Siltstone, loc. sandy, hard some shaly partings in lower half. Dk gray weathering lite gray locally with fe stain on joints + bedding surfaces.

3.8 Shale dk gray to black, clay fissile

2.0 Siltstone as in 1.9 above but more platy, shaly.

3.6 Interbedded dk gray (slightly) sandy siltst + lt brn increase downward.

1.5 Sandstone, silty, platy, with interbeds dk gray silty sh. 0.2 bl shale sits on unit below.

24.0 Sandstone, lt gray fine grained, hard tabular beds up to 2.5, with interbeds of black shale

locally clay. strike shale
becomes heavily common and
sandstone beds thin 0.2 - 1.0'
to occur/ most sandy in middle
with SS at top + base. Ls lgy.
SS. is fine to med. qtz, calc. w/
hzs clay pellets cgl. Some
concretions beds locally to
distinctive unit. Bedding
surface shows various features,
some current ripples, +
worm casts. Shale some
hard silt filled burrows.
lite grey silt layers covered
with worm trails + tubes.
Lower 10' chiefly SS in thin
beds, more massive not as
fissile + weathers with
irregular, tuberculate surface.
Basal 1 to 2' is sandy, shale
clay pellets.

3.0 Shale, fissile, blackish, has thin
porcellanite streaks about 0.2
thick, 1.5 below top.

0.5 Siltstone, lt-dk grey mottled
light brownish grey

0.8 Shale, dk. fissile

15.0 Sandstone, fine-gr, silty, irregularly laminated forms characteristic crumbly buff to orange-brn ledge. with bedding poorly shown if at all 9.7 from top is hard Fe impreg. dk brn layer, looks concretionary.

4.6 Sandstone as above. with gray to dk gray argill silt and silty lt. sh interbeds.

1.8 Shale, black, fissile, silty

0.2 Pyritiferous

6.6 Siltstone, dk grey, weath light gray, with some interbeds crumbly fine-gr SS and silty sh 2.0 from top to top of 0.6 bed black fissile sh., then about 0.5 SS, ripple ldc. thickly thinly bedd - 1cm silt with minor SS & sh.

5.6 Sandstone, fine gr, friable some silty zones & laminae

Forms crumbly loose bot gels
[illegible], pinky locally

2.2 Siltstone, dk gray weathers
light gray, shaly in lower part

0.8 Shale, black, fissile

0.2-0.4 Conglomeratic (sample)

Disconformity

This locality on to section starting
p. 37.

Twelvemile Park, locality 4, continuation
of bottom of section from
top of unit 1 in section A,
see p. 39.

Section (3)

18.5, Sandstone, massive x low
weathers, red stain of top
to pink & gritty, chiefly
fine grained

3.0± Conglom & conglom. ss
chert & qtzite pebbles
with considerable
clastic matrix

4.0 Clayshale, purple, red, silty

3.5 Clayshale, green, silty

10.+ Clayshale, brick red, shaly

Uzsh - water bearing strata of red + green clayshale and approx. 35'.0 feet of rock had where broken ss ledges came in - this may be flat but looks good.

Canon City — Grape Creek area

Section of Skyline lens between Sand Cr + Garbage gulch section - in minor gap.

46.6 Sandstone, tan/buff, x bed in upper 2/3, more massive in lower 3rd, which is increasingly calc downward base 2 to 4 ft+ commonly with layers cgl. - coarse chert + qtz ls with pebbles up to 2 or 3" common. Whole weathers brown, lower 3rd common + pinkish cast. Ledge former - holds hogback crest locally. At top, just below silt + shale, is bed cht + qtz to pebble cgl 0.4 to 0.8+ thick.

Disconformity

Lytle.

Colorado Springs area
Little Fountain Creek section - Taken in Nixon Brothers quarry in gap Little Fountain Cr. in Dakota hogback

Benton shale

(50)	0.6	Bentonite
49)	4.8	Shale, black, silty, blocky.
48)	0.1	Bentonite
47)	1.8	Shale, as above, silty weathers brown in basal 0.2
46)	0.2	Bentonite
45)	1.2	Siltstone, argillaceous, soft weathers brownish gray
44)	0.2	Bentonite
43)	2.0±	Shale dk gray-black silty
42)	9.7	Sandstone, fine-grained, in massive beds up to 3' thick x-lam. Bedding planes with ripple-marks, worm castings. Some interbeds silt. shale in upper part

Thinly

41) 11.0 Interbedded fine gr. ss, siltstone and silty shale. Alternating beds commonly ± 1 inch, but some hard, qtzitic (locally) ss

40) 2.1 Shale, dk grey, fissile, some silt stone interbeds.

39) 1.5 Siltstone, highly irregularly, subconchoidal fracs, weathers brownish grey.

38) 0.1 Clay? very plastic light blue grey weathers, may be bentonitic

37) 0.1 Siltstone, argill. calcareous locally hard.

36) 4.3 Clay, blue-gray, plastic - unweathered equiv. not seen, may be plastic shale. Basal 0.8 has ~~dk~~ thin interbeds argill. siltstone. (So presume clay is shale) & lower 0.4 is all siltstone)

35) 2.7 Sandstone, fine grained, in beds to 0.5 with

partings and interbeds of carb siltstone and silty claystone.

34) 10.0 Sandstone, fine grained, in massive beds, x lam. Minor shaly ss partings. White, weathers buff & brown, some radial strain locally in lower part.

33) 3.6 Siltstone, argillaceous, carbonaceous black with carb frags & vitrain seams. Some ss at top & base (Sample 1).

32) 1.0 ± .5 Sandstone, dirty fine grained and siltstone in hard lenticular layer shot through with carbonaceous fragments. Weathers yellowish gray rounded ledge (This lenses out to N where porcellanite clay sits on carb siltstone above.

31) 0.3 Porcellanite zone, locally gypsiferous.

30) 2.0 Claystone, dark gray to black silty, scattered carb frags weathers blocky to sub-conchoidal. (Sample 2

29) 2.4. Siltstone, dark gray, clayey locally hard, laclay. massive. Commonly 2 silty claystone at top.

28) 0.6-1.0 Sandstone, fine-gr, massive, and irregular bed, greenish gray.

27) 4.7 Claystone, dk gray to black subconch. fracture, approaching semiflint. clay. Finely silty becoming more silty in base 0.8 and grading into unit below. (Sample 3)

26) 1.8 Sandstone, fine gr, silty, greenish gray. Commonly 0.8± transition zone from argill. siltstone above. Like smaller 0.6-1.0 unit above shows spheroidal weathering.

25) 4.0 Claystone, silty and argill. siltstone mixed - subconch fracture lite gray (silty) to black, most of latter in thin streak in middle. Thin zone, 0.2, carb clayey siltstone at base (Sample 4)

24)	3.4	Sandstone, fine grained, quartzitic bands, in lower 1.0 - 1.5 grading upward to sandy ~~clay~~ dk gray clay stone, whole forms lodge. Base of ss above full of carb fragments,
23)	4.4	Clay stone, very silty, light gray, blocky fracture. Bed thins laterally (Sample 5)
22)	0.3±	Paucilamite (Sample 6)
21)	3.5	Clay stone, black, very silty, shiny black plant fragments, characteristically spotted with carb frags, ~~very~~ hard (Sample 7)
20)	0.8±	Sandstone, fine grained hard, qtzitic - thins out locally. Gray, yellowish to greenish stain.
19)	0.8±	laminated Clay stone, gray, ^ scuiflint thickens to 1.2 locally
18)	0.3±	Sandstone. as in 0.8± above

17) 6.0. Claystone, laminated, semiflint, gray to light gray, local silt laminae

nc) 2. Gray, siltfree, semiflint (Sample 8)

nb) 2.4 Zone with abundant silt laminae, thin bed silt at top (Sample 9)

na) 1.6. Some silt laminae in gray clay (Sample 10)

16) 0.2 Poorly sorted - sltfl (Sample 11 part).

15) 2.7 Claystone, silty, grading to clayey siltstone, black to gray downward with some "bone" in upper few inches. (Sample 11 part)

14) 1.0 Sandstone, fine gr, hard, greenish & yellow weathg.

To 35

13) 2.7 Claystone, silty, massive gray, local dk gray near base & also some red & olive stain at contact underlying sandstone.

12) 10. - 12.0 Sandstone, tabular x lam to x bedded, fine gr to med gr, hard, pink-stain on fresh

surfaces, weathers brown

11) 7.6 claystone
Shaly, silty, and clayey siltstone, dk grey to blackish, laminated, silt chiefly in laminae. ~~Sandy~~
Interbeds hard fine grass and mud
silstone in upper 2.0'

10) 13.3 Sandstone, fine gr in massive to tabular beds x-lam, brown weath.

9) 5.9 Sandstone, fine grained, siltstone clayey

9c) 0.5 Hard, grey, clayey siltstone root-like impressions down-from bedding surface red stain

9b) 1.6 Carbonaceous siltstone

9a) 3.8 Fine grass with irregular lenses argill. & carb. siltstone.

8) 31.7± Sandstone, in thick beds, massive x-bedded laminated weathers br & dk,

7)	1.1	Claystone, laminated with siltstone, reddish-purple at contact then thru brick red to base.
6)	1.7	Shale, dk gr to black locally silty.
5)	0.3.	Bentonite.
4)	4.5	Shale, silty, dk gray with silt laminae and thin interbeds, basal 0.8 is more of a shaly siltstone
3)	7.5	Shale, clay, black fissile, gypsiferous with black ironstone concretions. About 1 ft from top is crumbly zone may be minor fault zone. (Sample 12)
2)	2.0	Shale, dark gray to black silty, with laminae + thin beds siltstone + fine grass - platy.
1)	3.0 +	Shale dk gray, silty, grading in 3 feet ± to argill siltstone.

West wall of quarry on this silt

Above quarry on partially cleared west side ridge. Platy siltstone & fine ss in thin beds stick out 66 feet ± below base of sandstone (Kessler equiv.). 26 feet (strat) west buff weath, thick bedded x bdm ss. crops. Is med. with some coarse near top.

Sandstone is 4' thick ± - under it is light west. with chunks cgl ss floating? 2-3 ft 3' below it. It is not cgl'tic, but coarse & some clay pebbles.

Flat from base buff. ± bdm weath ss to first typical Lytle cgl'tic ss is about 25'.

Siltstone 1' thick

Canon City area - N.E. Fremont Co.

Route 115 section Salt Canyon Section in Partial section of lower Glencairn and Skyline tunnel along Colo. 115

Starting in lower Glencairn.

Slope wash

6.2 Sandstone, fine-grain, thin-bedded, buff-weathering sandstone, crumbly base in road cut. Has some pebbly sandy shale. Is more platy, laminated in upper part (This is only basal part of this platy ss - most shown in slope wash)

2.8 Interbedded fine gr, buff weathering sandstone and light gray weathering siltstone - thin beds some shale pebbles in basal part

3.0 Shale, gray to dark gray with minor silt.

0.1 Sandstone coarse gr, locally with some pebble. Grains

are vari colored) chert + quartz.
(Sample 1.)

0.6 Shale dk gray.

1.7 Sandstone, hard thin beds, fine + med grained, similar to above in grain constituents. Shale interbeds (bottom 0.1 is gray shale) and hard argill siltstone interbed.

0.2 Coarse ss or fine cgl - with shale parting at base (Sample 2)

2.8 Sandstone, fine gr, hard thin bedded, but with 0.5 conglomeratic ss at base.

0.9 Shale, gray, clayey

0.4 Bentonite.

1.3 Irreg. interbedded siltstone and sandstone. ss is med. to coarse + calc, weak; rusty brown, silt high iron

3.2 Sandstone, massive, cross am. with upper 1.2 or less showing bedding, fine gr with coarse cgl layer on fo brown upper surface.

0.4 Shale, silty, some cgg, prob much weathered recently

6.4 Sandstone, silty, f. mar gr, irreg. even bedded, X lam. scattered shale silt partings. Basal 0.2 common cong-lomeratic, whole weathers buff, bldgy. Basal thick ss bed. 1.5 is locally pebbly and under it 0.2-0.4 cgltic silt stone, sandy.

1.0± Siltstone and interbedded lignitic silty sh., & lignitic silt. Weath is typical pup-brown of lignite with silt-ss lenses quzy layers.

15.0 Sandstone, silty even bedded, loc thin bedded & grossly cross bedded, weathers buff, individ beds stand out. Beds mostly foresets which coarsen

59

downward individually becoming coltic at unconformable base of this unit. In general they are fine to coarse & coltic. Only locally silty in top unit. All shot with carb. plant frags. Locally has ss like that below reworked in base but basal cgl. marks contact.

Lytle 28,0 Sandstone, massive. X bdg, lenticular weathers grey-white, fine gr above becomes coarser. Commonly coltic in lower 1/2

The upper contact is consistent at base of cgl zone. Unit above. At some places this is in continuous rock section + ss above + below covered section - has red weath spots locally - typical while Lytle comes in gradually downward.

0.3-? Clay stone - bright green
Wash covered slope

June 26 Reconnaissance out Colorado 143 to fault block of Dakota beginning W. of Chandler. — Appears on granite most of way — seem furthest from it at N. end. Possibility of partial section near Lytle contact at S. end where 143 goes up mountain, on Bar W Ranch, C.E. Walters.

June 27 With Joe & Pete

1) Skyline section - base part. The thick ss overlain by coarse arkosic clay stone, calc. Base ss. dk. reddish to maroon & purple calc cloth — what is it?

From bottom up.
Slope wash
40+ Clay, sandy to calc, arkosic brick red & maroon with light & brite green streaks. Variation in grain size, most all calc, one partially indurated calc ledge gray coarse, calc ss 24.5 ft from top. Also calc clayey ss in weak ledge at base.
0.7 Sandstone, calc, ~~lam~~ arkosic

$\frac{33}{15}$

$\frac{33}{36}$

$\frac{6}{13}$

$\frac{8}{2}$

49

0.7 Shale, sandy olive, with maroon streak at base.

0.4 Limest. platy, sandy grn. weaths yellow gray

82.0 Sandstone, fine to coarse & calc, massive., Arkosic throughout. Basal 20' ~~very~~ fairly, to 64' Interstitial clay 56' from base becomes much coarser has increasingly more coarse, and gravelly over 90%
48' from base to 56' is coarser than stuff below
Last 13 is not quite so coarse,
Unit ~~gets~~ begins as grayish to grayish pink upper 15 becomes increasingly pinker, at top 4 or 6 ft almost red.

42.0 Sandstone cgl., coarse arkosic, sit uncomf on SS below, bottom 4" is cgl. is grayish pink, upper part becomes soft, obscured

consists of lenses sndy clstn + clayey arkosic cgl. minor clstn all variegated red + grn + gray

20.0 Irreg. lenses clayey arkosic cgl to ss, + cgl to clystn & arkosic/ + small lenses weath gray to pink gray with some red + green clstn, Grades into unit above.

15.0 Claystone, sndy + clayey ss, arkosic, calc, chiefly soft var red + green gray, some hard beds fine gr calc ss in upper part, thin.

11.0 Sandy to silty claystone greenish gray calc. About 2' fine gr calc ss at base, 8' from base is brown weath, course to cgl. arkosic hard ss calc. cement.

5.0 Fine gr. calc ss., greenish gray to white weath gray brown with interbeds locally grn clayey silt, Some feldsp in fine gr ss

25.0 Chiefly clsty + clayey siltstone limey with scattered lenses ss .2s below. 0.7 bed fossiliferous greenish gray limestone at top.

15.5 Chiefly, claystone, calc, silty

4.2 Limestone, weathers white, + yellowish gray, 2s aphan drusy.

4.8 Claystone, greenish, calc.

1.2 Clayey limey greenish lgt. to silty nodular ls. greyish

1.8 Claystone, greenish gray calc.

4.2 Interbedded argill ls. and limey clsty. Gray to lite gray green

0.2-0.8 Limestone, gray to dk gray fossiliferous

7427 Sample marked Skyline Morrison.

11.0 Claystone, silty, prob. calc., lower 4' ± yellow, chiefly green, coarse pink mottling above. Silty zones & coarse thin sandst. thruout

0.6 Chalk – Sample Norwood Chalk.

7.0 Red silty claystone with lower 4' bright green.
At top is thin chalk again with green bed on it ± 0.4.

This hooks on to bzsel 26' of Skyline addition.

Oil Creek Section

?

Fountain — Interbedded silty shale, sandy, micaceous with beds & lenses calcareous. Dark red & brick red with irreg zones & blotches bottle green

5.5 Sandstone calcic, angular cht, qtz, feldspar, weathers light pinkish grey.

0.5 Limy sandstone, (laminated) yellowish grey

4.6 Sandstone, fine, silty, soft, greenish grey

53.0 Sandstone, mostly fine to med. locally ~~coarse~~ slabby to irregularly bedded some massive beds, sandy sh partings. Micaceous. Local zones cgl of calcar cht, qtz, feldsp frags up to 1.0 Cgls generally, grey to green, fine stuff orange-red. Shales brick red some green. Whole becomes more calc upward. Forms big orange red cliff

27.0 Continuation of above

in slope top of cliff. Is alternating beds subbasic green gray calc and some fine ss as below, ~~but~~ and soft sandy claystone, very. Soft sandy stuff increases upward. All gradational with about upper 4 has calc. sandy clstn. grading upward from the calc layers.

7.0 Two beds pink to brn. weath. ss very calc, fine to coarse loc. calitic, form crumbly ledge. with light gray shaly sandst, very. weath. pink + gray white. Calc ss have crinkled bedding and top one has thin bed ls. on top

4.7 Interbedded clayey siltstone and calc, fine-med ss in thin beds. Very, red + green

16.8 Sandstone, light gray weath greenish cast on fresh. Fine + med, soft, limy, becoming argillaceous in upper 6 - feet - weath mottled green-gray + reddish, with ls nodules + some red shaly siltstn.

This zone recordable laterally.

7.7 Conglomerate, coarse lds & feldspathic also with chunks of underlying limestone (with fossils) schist, qtz, etc in it, angular.

21. DK grayish drab shale & clstn, silty, with some thin interbeds 1cm fine ss. (these up to 0.8 thick scattered) also some small lenses gray dense limestone.

below SS 9.0

0.6 bed fine calc. lzm. ss

9.0 above base - it has clay-pellet top, some feldsp fresh grains

SS 0.6

Dark to yellow gray clstn some ss interbeds as above. Increasingly limy upward incl. nodular ~~lime~~ silty yel. grn weath limest, and a top bed about 1.3 thick good zph. ls-gray, spheroidal weath.

above SS 11.4

6.6 Chiefly silty hard calc green & gray green clstn really a marl

11

$$\frac{5.3}{2.2}$$

7.5 Sandstone, fine-med gr. cross lam. weaths brown

12.3 Claystone, marly, grzy green to drab with zone pink in lower half + thin bed in upper ½ 2.6 bed ss at top

21.0 Claystone, marly, gray green with ~~2~~ to three brown weath ss, units in upper 12' basal one has ls clay pellet cgl. Dino bones.

8 to 12+ Sandstone, massive ledge med-coarse incl. green folds, grains, granules to finely cglte with green clay pellets at base.

22.0 Claystone, chalky drab & green some zones ls pellets in lower part. Most calc. at base less so upward. Upper 3' ± becoming yellow green.

6.7 Claystone, sandy, calc,

74.0

purple band at base, alternating green gray & purple gray clayst., calc. nodules in upper part + 2" conc. (nodules) ls at top. Some Unio frags in float

34.0 Interbedded unit above purple band continues.

Alternating purple & greenish gray claystone, calc, sandy, with limestone beds, increas. upward in thickness and number. At top is 3.0 limestone bed - most of others only 0.3-0.5. Some near top have red chert.

14.0 Claystone, gray green, calc some ls in lower part 0.3 bed calc ~~claystone~~ siltst at top

56.3 Claystone, var, red & greenish some silty, band zones less calc than below 2.5 ft green sandy clstn at top.

19.0 Claystone, silty red, - weathis, brush red few green layers 8.0 from base 0.4 red ls. 2nd bzs zd 1.3 purple. Some is clayey silt. Sandy in upper part, with upper 2.0 clayey ~~silty~~ green & dust. soft.

one unit 30.0

10.6 Claystone as above, mostly bocalt red.

1' 6' from base is 0.5 red silty limest.

54.0 Claystone, silty, + loc. clayey silt. var. pinkish red predom. with zbout 25% greenish.

3.5 Interbedded, fine gr. calc. ss. and var. siltst. & argill silt.

9.6 Claystone, sandy, and clayey ss, hard, red to lite gray var.

10.6 Interbedded lite gray to yellow gray hard silty clsth

23.6

and fine. gr. siltstone + ss. red ~~to~~ gray, weaths brn.

10.7 Sandstone, massive ledge, fine gr, brown weath, greenish ~~to~~ pinkish on fresh at base upper 1.5 becoming shaly upward.

Under nipple this clstn thicker ss below thin red. This unit had Cope Nipple quarry. (See his nipple sect.)

5.3 Clayst one, silty, hard, with few ledgy interbeds hard clays, silts. Chiefly gray, one red zone near top + green one at base. *

6.0 Sandstone, fine gr, irreg bedded to platy, log. silty with some silty clstn ptngs, mottled pinkish gray

[* E.D. Cope]

16.3 Clayst one, hard, noncalc, silty loc sandy at 2 about 5 + 12' from base. Red in lower 5', then 5 greenish gray, 1 gray, remainder is red.

(Nipple capped by equiv. strata)

2.7 Sandstone, fine gr. weaths pinkish gry to brn, massive

9.3 Clayst, hard, silty
local zones 3' avgill silt
at top grades down, chiefly
drab, dray, greenish gray
(Channel ss below cuts to
top of this locally.)

150

5.6 Clst as above but deep
purple beds green.

[E.D. Cope] (Cope's Lemurosaurus exilis quarry in top this

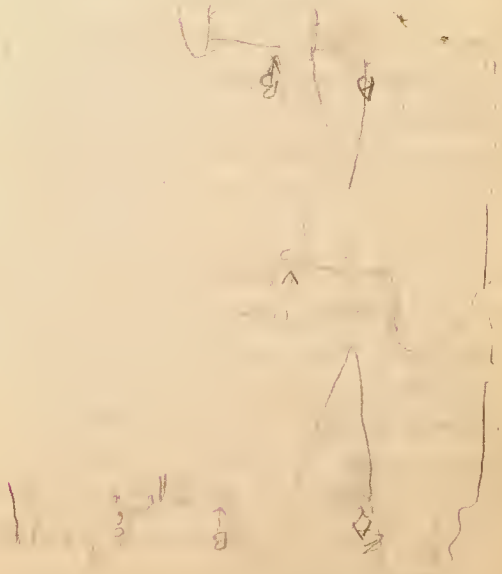
4.0 Sndstone, massive x lam
to x bd. weaths red brn
to pinkish med to coarse
some. cht + qtzt granules
in pockets also clst pebbles

Cope p. 2

See p. 1 of Utah 1955-2

3.5 Siltst, sandy, red, with
some greenish silty clst
at top.

4.8 Sndstn: fine to med gr
massive x-lam, weathy
buff pinkish cast.

3.41 Sndstone, platy to thin bedded
fine gr with partings &
thin beds sandy clstn

Jim Walker
Stone Cities